

Nokia Customer Care

Service Manual

RM-233 (Nokia 8800Arte; L1&2)

Mobile Terminal

Part No: (Issue 1)

COMPANY CONFIDENTIAL



Amendment Record Sheet

Status	Version	Date	Comments
Draft	0.1	9.11.2007	Initial draft
Approved	1.0	14.11.2007	Approval

The purpose of this document is to help NOKIA service levels 1 and 2 workshop technicians to carry out service to NOKIA products. This Service Manual is to be used only by authorized NOKIA service suppliers and the content of it is confidential. Please note that NOKIA provides also other guidance documents (e.g. Service Bulletins) for service suppliers, follow these regularly and comply with the given instructions.

While every endeavor has been made to ensure the accuracy of this document, some errors may exist. If you find any errors or if you have further suggestions, please notify NOKIA using the address below:

CMO Operation and Logistics

Training and Vendor Development

Multimedia Creation & Support

E-mail: Service.Manual@nokia.com

Please keep in mind also that this documentation is continuously being updated and modified, so watch always out for the newest version.

Copyright

Copyright © 2007 Nokia. All rights reserved.

Reproduction, transfer, distribution or storage of part or all of the contents in this document in any form without the prior written permission of Nokia is prohibited.

Nokia, Nokia Connecting People, and Nokia X and Y are trademarks or registered trademarks of Nokia Corporation. Other product and company names mentioned herein may be trademarks or tradenames of their respective owners.

Nokia operates a policy of continuous development. Nokia reserves the right to make changes and improvements to any of the products described in this document without prior notice.

Under no circumstances shall Nokia be responsible for any loss of data or income or any special, incidental, consequential or indirect damages howsoever caused.

The contents of this document are provided "as is". Except as required by applicable law, no warranties of any kind, either express or implied, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose, are made in relation to the accuracy, reliability or contents of this document. Nokia reserves the right to revise this document or withdraw it at any time without prior notice.

The availability of particular products may vary by region.

IMPORTANT

This document is intended for use by qualified service personnel only.

Warnings and cautions

Warnings

- IF THE DEVICE CAN BE INSTALLED IN A VEHICLE, CARE MUST BE TAKEN ON INSTALLATION IN VEHICLES FITTED WITH ELECTRONIC ENGINE MANAGEMENT SYSTEMS AND ANTI-SKID BRAKING SYSTEMS. UNDER CERTAIN FAULT CONDITIONS, EMITTED RF ENERGY CAN AFFECT THEIR OPERATION. IF NECESSARY, CONSULT THE VEHICLE DEALER/MANUFACTURER TO DETERMINE THE IMMUNITY OF VEHICLE ELECTRONIC SYSTEMS TO RF ENERGY.
- THE PRODUCT MUST NOT BE OPERATED IN AREAS LIKELY TO CONTAIN POTENTIALLY EXPLOSIVE ATMOSPHERES, FOR EXAMPLE, PETROL STATIONS (SERVICE STATIONS), BLASTING AREAS ETC.
- OPERATION OF ANY RADIO TRANSMITTING EQUIPMENT, INCLUDING CELLULAR TELEPHONES, MAY INTERFERE WITH THE FUNCTIONALITY OF INADEQUATELY PROTECTED MEDICAL DEVICES. CONSULT A PHYSICIAN OR THE MANUFACTURER OF THE MEDICAL DEVICE IF YOU HAVE ANY QUESTIONS. OTHER ELECTRONIC EQUIPMENT MAY ALSO BE SUBJECT TO INTERFERENCE.
- BEFORE MAKING ANY TEST CONNECTIONS, MAKE SURE YOU HAVE SWITCHED OFF ALL EQUIPMENT.

Cautions

- Servicing and alignment must be undertaken by qualified personnel only.
- Ensure all work is carried out at an anti-static workstation and that an anti-static wrist strap is worn.
- Ensure solder, wire, or foreign matter does not enter the telephone as damage may result.
- Use only approved components as specified in the parts list.
- Ensure all components, modules, screws and insulators are correctly re-fitted after servicing and alignment.
- Ensure all cables and wires are repositioned correctly.
- Never test a mobile phone WCDMA transmitter with full Tx power, if there is no possibility to perform the measurements in a good performance RF-shielded room. Even low power WCDMA transmitters may disturb nearby WCDMA networks and cause problems to 3G cellular phone communication in a wide area.
- During testing never activate the GSM or WCDMA transmitter without a proper antenna load, otherwise GSM or WCDMA PA may be damaged.

ESD protection

Nokia requires that service points have sufficient ESD protection (against static electricity) when servicing the phone.

Any product of which the covers are removed must be handled with ESD protection. The SIM card can be replaced without ESD protection if the product is otherwise ready for use.

To replace the covers ESD protection must be applied.

All electronic parts of the product are susceptible to ESD. Resistors, too, can be damaged by static electricity discharge.

All ESD sensitive parts must be packed in metallized protective bags during shipping and handling outside any ESD Protected Area (EPA).

Every repair action involving opening the product or handling the product components must be done under ESD protection.

ESD protected spare part packages **MUST NOT** be opened/closed out of an ESD Protected Area.

For more information and local requirements about ESD protection and ESD Protected Area, contact your local Nokia After Market Services representative.

Care and maintenance

This product is of superior design and craftsmanship and should be treated with care. The suggestions below will help you to fulfil any warranty obligations and to enjoy this product for many years.

- Keep the phone and all its parts and accessories out of the reach of small children.
- Keep the phone dry. Precipitation, humidity and all types of liquids or moisture can contain minerals that will corrode electronic circuits.
- Do not use or store the phone in dusty, dirty areas. Its moving parts can be damaged.
- Do not store the phone in hot areas. High temperatures can shorten the life of electronic devices, damage batteries, and warp or melt certain plastics.
- Do not store the phone in cold areas. When it warms up (to its normal temperature), moisture can form inside, which may damage electronic circuit boards.
- Do not drop, knock or shake the phone. Rough handling can break internal circuit boards.
- Do not use harsh chemicals, cleaning solvents, or strong detergents to clean the phone.
- Do not paint the phone. Paint can clog the moving parts and prevent proper operation.
- Use only the supplied or an approved replacement antenna. Unauthorised antennas, modifications or attachments could damage the phone and may violate regulations governing radio devices.

All of the above suggestions apply equally to the product, battery, charger or any accessory.

Battery information

Note: A new battery's full performance is achieved only after two or three complete charge and discharge cycles!

The battery can be charged and discharged hundreds of times but it will eventually wear out. When the operating time (talk-time and standby time) is noticeably shorter than normal, it is time to buy a new battery. Use only batteries approved by the phone manufacturer and recharge the battery only with the chargers approved by the manufacturer. Unplug the charger when not in use. Do not leave the battery connected to a charger for longer than a week, since overcharging may shorten its lifetime. If left unused a fully charged battery will discharge itself over time.

Temperature extremes can affect the ability of your battery to charge.

For good operation times with Li-Ion batteries, discharge the battery from time to time by leaving the product switched on until it turns itself off (or by using the battery discharge facility of any approved accessory available for the product). Do not attempt to discharge the battery by any other means.

Use the battery only for its intended purpose.

Never use any charger or battery which is damaged.

Do not short-circuit the battery. Accidental short-circuiting can occur when a metallic object (coin, clip or pen) causes direct connection of the + and - terminals of the battery (metal strips on the battery) for example when you carry a spare battery in your pocket or purse. Short-circuiting the terminals may damage the battery or the connecting object.

Leaving the battery in hot or cold places, such as in a closed car in summer or winter conditions, will reduce the capacity and lifetime of the battery. Always try to keep the battery between 15°C and 25°C (59°F and 77°F). A phone with a hot or cold battery may temporarily not work, even when the battery is fully charged. Batteries' performance is particularly limited in temperatures well below freezing.

Do not dispose of batteries in a fire!

Dispose of batteries according to local regulations (e.g. recycling). Do not dispose as household waste.

(This page left intentionally blank.)

Nokia 8800Arte; L1&2 Service Manual Structure

- 1 General information
- 2 Service Devices and SW Update
- 3 Disassembly and Assembly Instructions

(This page left intentionally blank.)

Nokia Customer Care

1 — General information



(This page left intentionally blank.)

Table of Contents

Nokia 8800 Arte, RM-233	1-5
RM-233 Exploded view	1-6
RM-233 Level 2 solder components	1-7
RM-233 PCI overview	1-8

List of Tables

Table 1 Transceiver features	1-5
Table 2 Transceiver with BL-4U Li-ion battery pack	1-5

List of Figures

Figure 1 RM-233 (Nokia 8800Arte) product picture	1-5
--	-----

(This page left intentionally blank.)

■ **Nokia 8800 Arte, RM-233**



Figure 1 RM-233 (Nokia 8800Arte) product picture

Table 1 Transceiver features

Band	GSM: quad band EGSM: EGSM/900/1800/1900 WCDMA: WCDMA2100
Display	OLED: QVGA 2" 240x320 pixel, 16M true colour display
Camera	Camera: 3.2-megapixel auto focus camera with 8x digital zoom
Operating System	Series 40
Connections	Wireless: Bluetooth Connector: Micro USB
Memory	1 GB internal

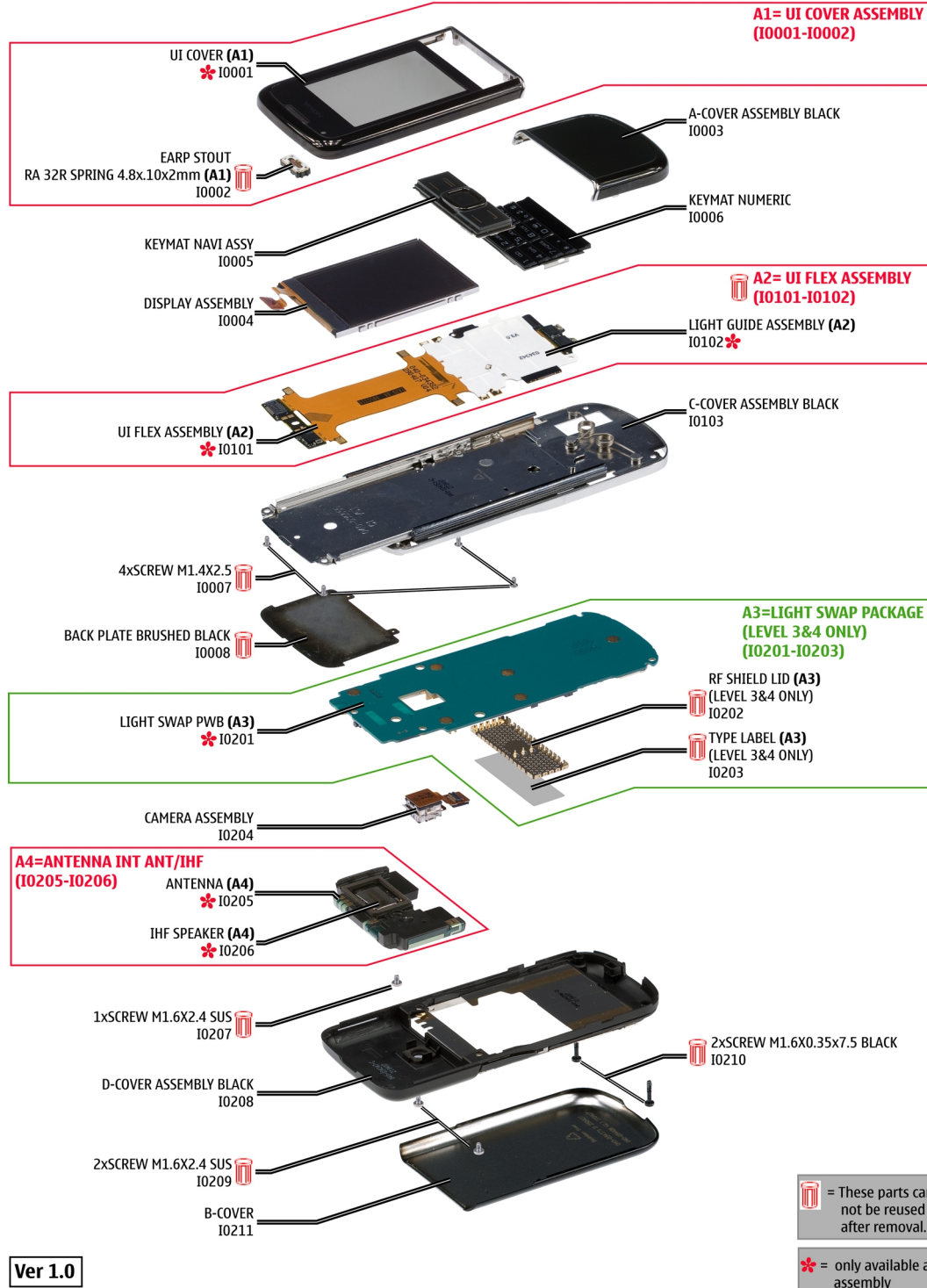
Table 2 Transceiver with BL-4U Li-ion battery pack

Talk time	Standby time	Note
Up to 3.3 Hours	12.5 Days	Depends on network parameters and phone settings

■ **RM-233 Exploded view**

See corresponding ITEM/CIRCUIT REF in the Spare Parts Service Bulletins on NOL

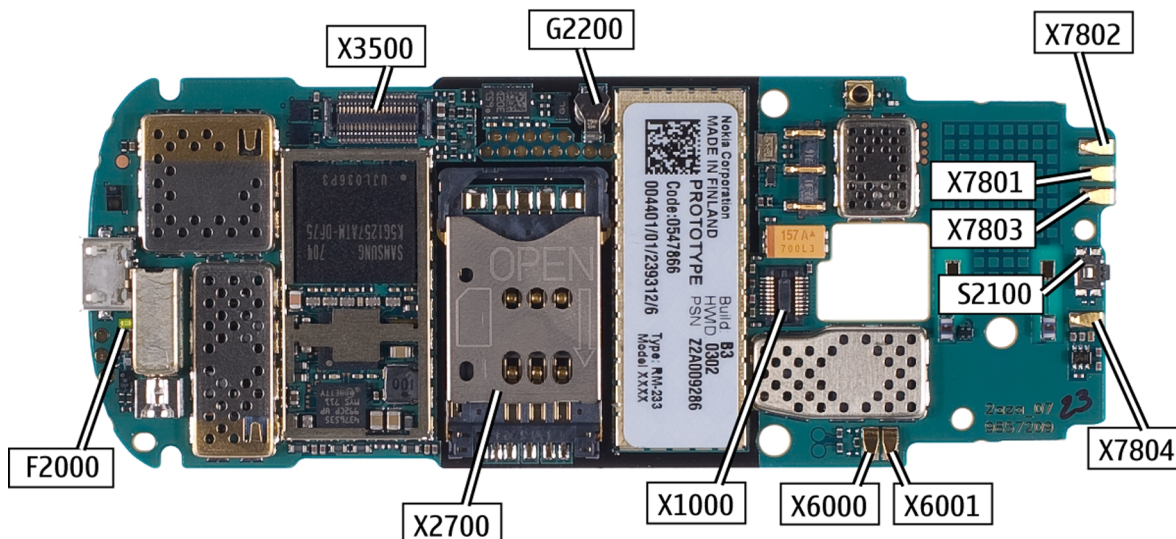
8800Arte RM-233 Exploded view



■ **RM-233 Level 2 solder components**

8800Arte RM-233 Components overview

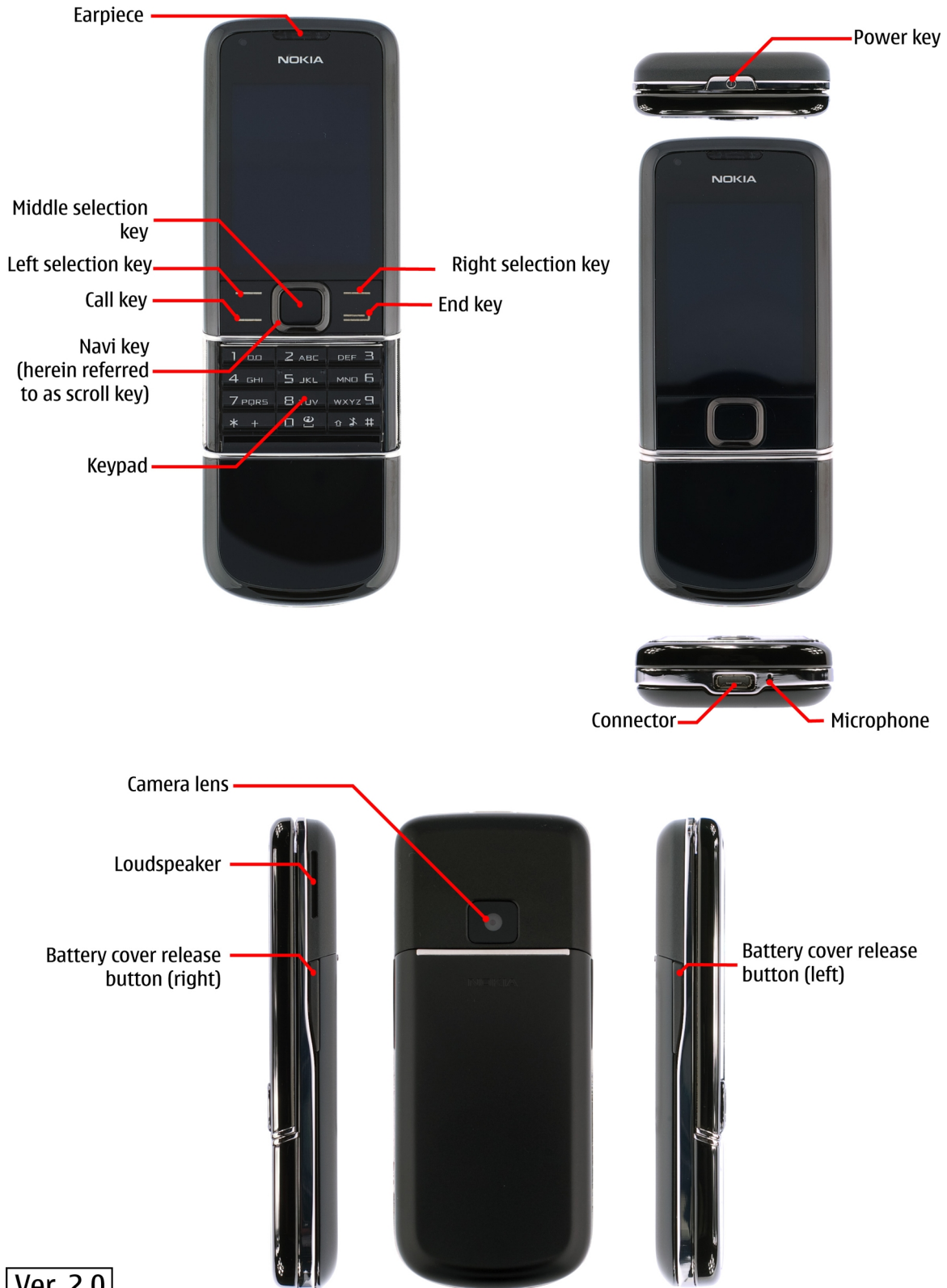
Solder components only for LEVEL 2



Ver. 2.0

■ RM-233 PCI overview

8800Arte RM-233 Product Controls & Interfaces



Ver. 2.0

Nokia Customer Care

2 — Service Devices and SW Update

(This page left intentionally blank.)





Table of Contents



Service Devices.....	2-5
AC-6.....	2-5
ACF-8.....	2-5
BL-4U.....	2-5
CA-101.....	2-5
FLS-5.....	2-6
RJ-171.....	2-6
SW Update.....	2-6
POS (Point of Sale) flash concept.....	2-6

(This page left intentionally blank.)

■ **Service Devices**

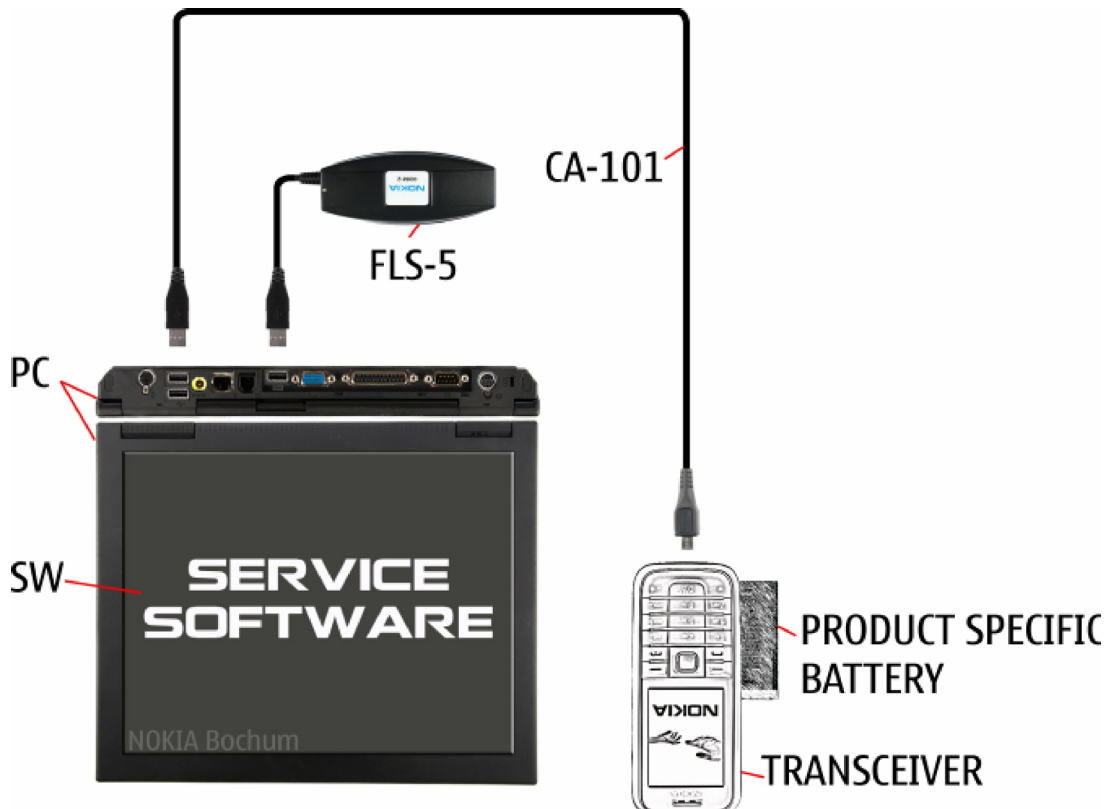
The table below gives a short overview of service tools that can be used for testing, error analysis and repair of product RM-233, refer to various concepts.

	AC-6	Travel charger	
<p>Small and lightweight charger for fast charging your phone battery.</p>			
 <p>ACF-8</p>	ACF-8	Universal Power Supply	
<p>Universal Power Supply is used to power FLS-5.</p>			
 <p>BL-4U</p>	BL-4U	Internal Battery	
<p>Inserted under the back cover, this Li-ion battery provides power in a lightweight package.</p>			
 <p>CA-101 100cm</p>	CA-101	Micro USB cable	
<p>The CA-101 is a USB-to-microUSB data cable that allows connections between the PC and the phone.</p>			

	FLS-5	Flash device	
<p>FLS-5 is a dongle and flash device incorporated into one package, developed specifically for POS use.</p> <p>Note: FLS-5 can be used as an alternative to PKD-1.</p>			
	RJ-171	Soldering jig	
<p>RJ-171 is a soldering jig used for soldering and as a rework jig for the engine module.</p>			

■ SW Update

POS (Point of Sale) flash concept



3 — Disassembly and Assembly Instructions

(This page left intentionally blank.)

Table of Contents

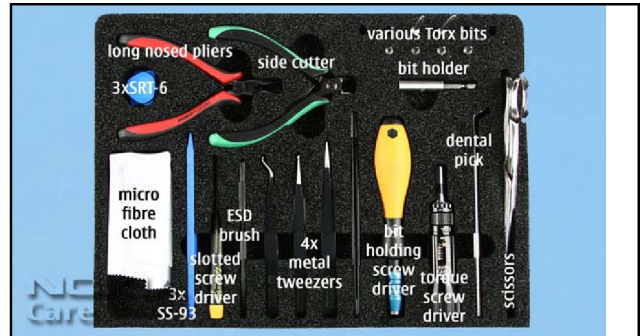
RM-233 Disassembly Instructions	3-5
RM-233 Assembly Hints	3-9

(This page left intentionally blank.)

■ **RM-233 Disassembly Instructions**



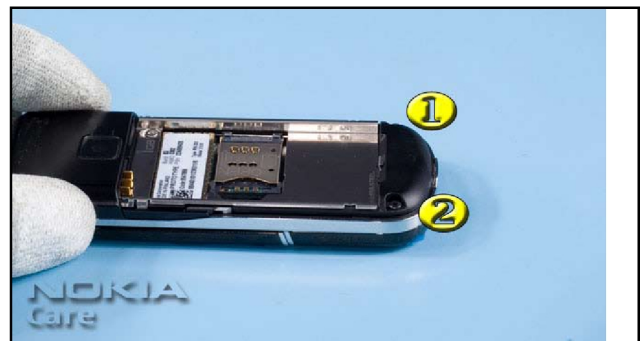
1. Nokia 8800 ARTE disassembly.



2. You need the Nokia Standard Toolkit version 2.



3. Unlock and remove the BATTERY COVER.



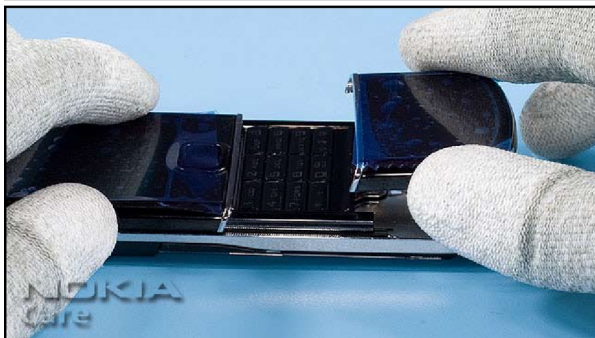
4. Unscrew both Torx Plus size 6 screws in the order shown.



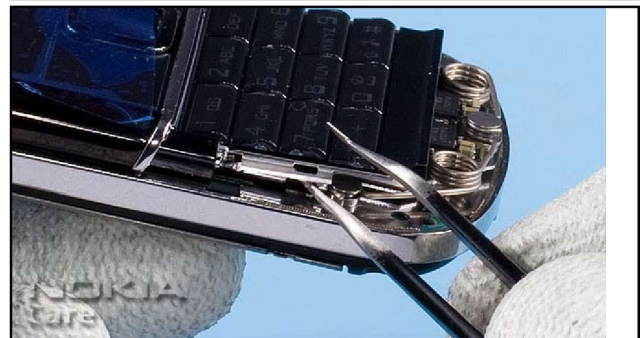
5. Discard these screws. Do not use them again.



6. Shift open the assembly.



7. Push the A-COVER ASSEMBLY into direction of the keymat. Lift it up now.



8. Carefully open the metal latches of the KEYMAT with the angled tweezers.



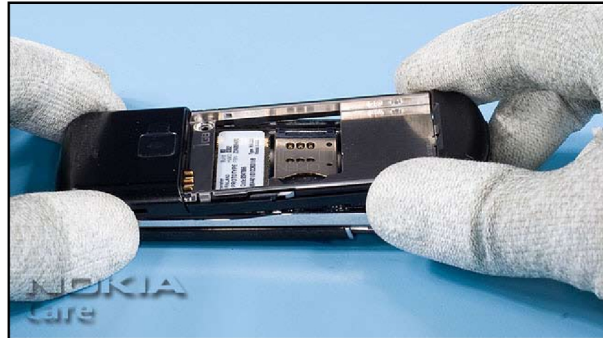
9. Lift up the KEYMAT.



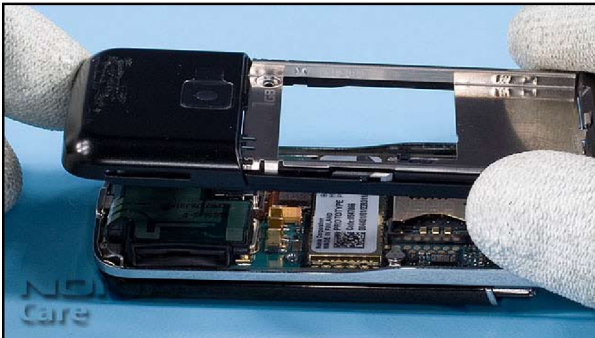
10. Unscrew both screws in the order shown.



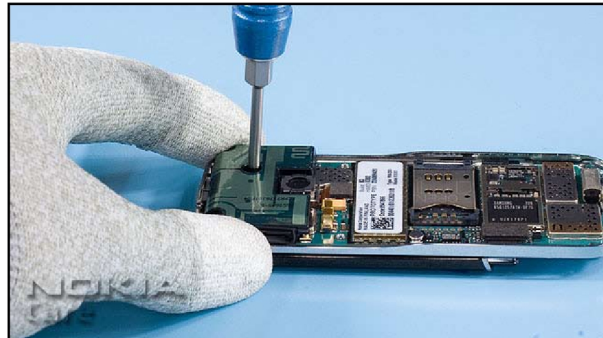
11. Discard these screws, do not use them again.



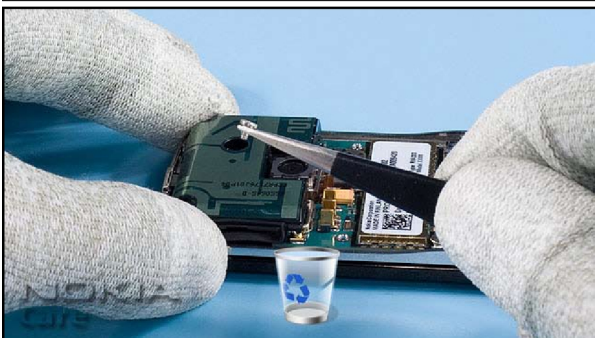
12. Lift up the D-COVER ASSEMBLY at the bottom side first. Push it towards slightly in order to unlock both top clips.



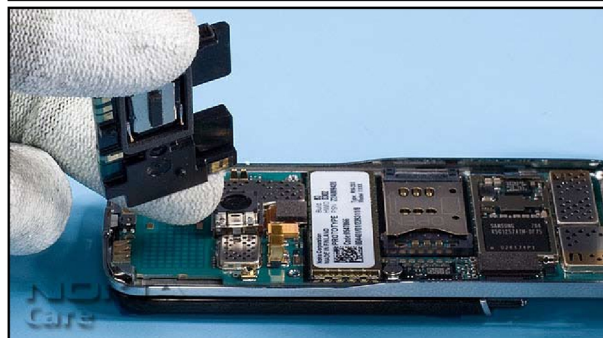
13. Lift up the B-COVER ASSEMBLY.



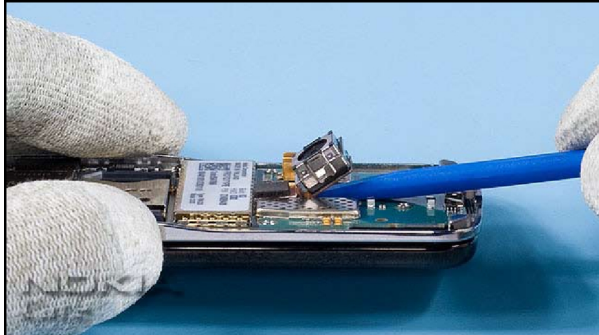
14. Unscrew the Torx Plus size 6 screw, located at the ANTENNA.



15. Discard this screw. Do not use it again.



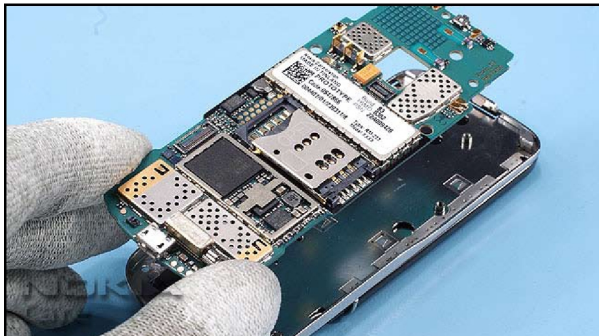
16. Lift up the Antenna.



17. Carefully lever up the CAMERA MODULE. Disconnect the flex connector and remove the camera.



18. Gently lever up the flex connector evenly. Prevent mechanical stress to the components underneath.



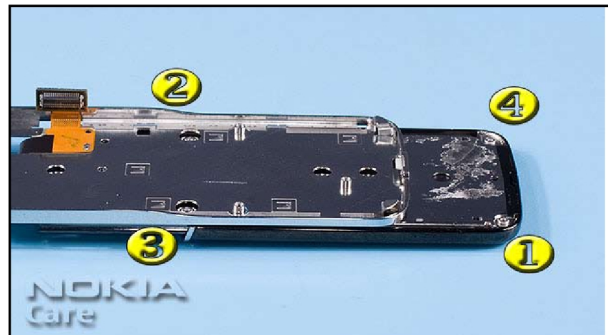
19. Lift up the ENGINE MODULE.



20. Partly lift up the glued in BACK PLATE with the SS-93.



21. Peel it up completely and discard it. Do not use it again.



22. Unscrew these Torx Plus size 6 screws in the order shown.



23. Discard these screws. Do not use them again.



24. Lift up the C-COVER ASSEMBLY.



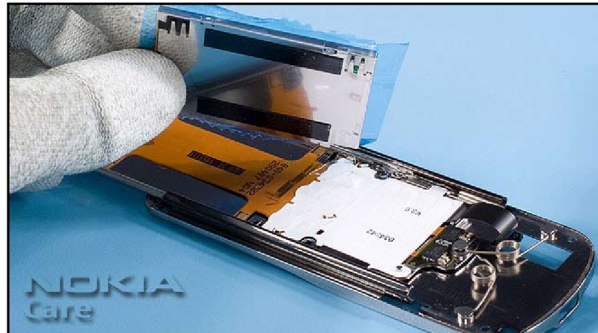
25. Open the flex connector of the LCD.



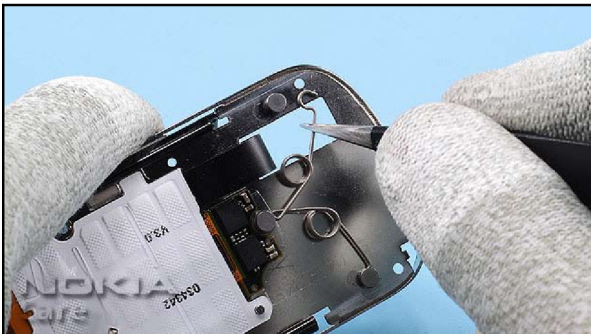
26. Start lifting up the glued in LCD at the shown side first.



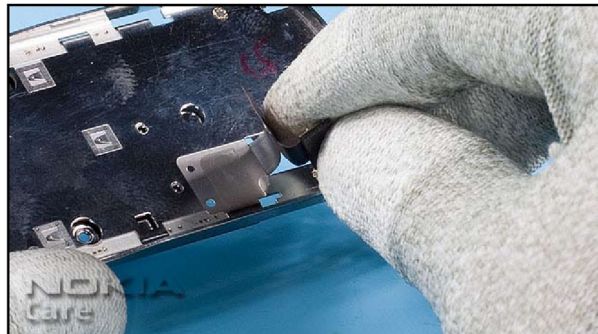
27. Lever out the other side.



28. Lift up the LCD completely.



29. Release this spring.



30. Peel up the UI FLEX connector and slot it through the recess of the C-COVER ASSEMBLY.

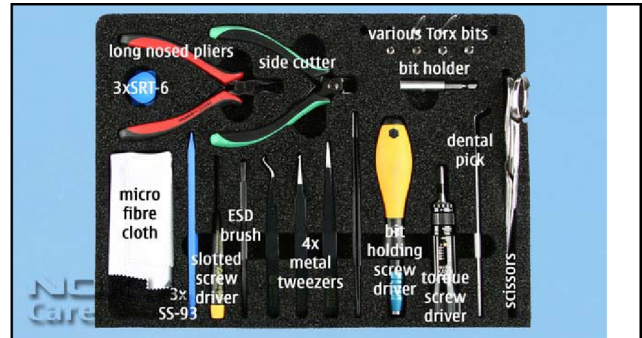


31. Now peel up the UI FLEX completely. Remove all adhesive residues if the C-COVER ASSEMBLY should be used again.

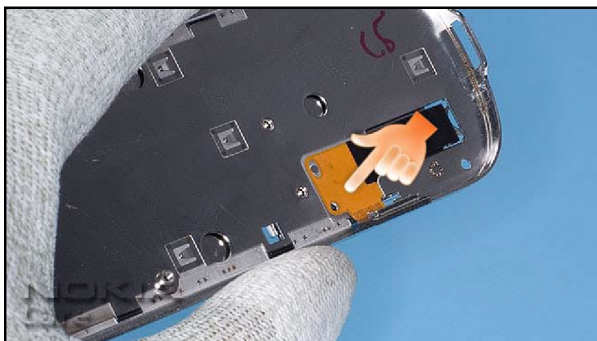
■ **RM-233 Assembly Hints**



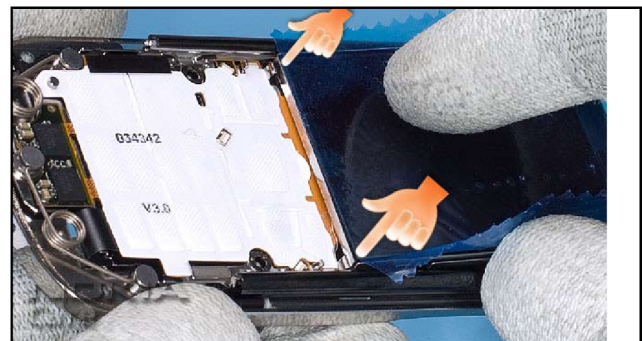
1. Nokia 8800 Arte Assembly



2. You need the Nokia Standard Toolkit version 2



3. Mind the guide hole while placing the UI FLEX.



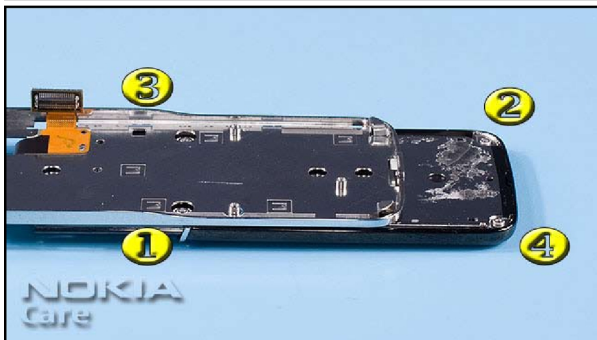
4. Align the LCD to these guiding first. Then push it down slightly.



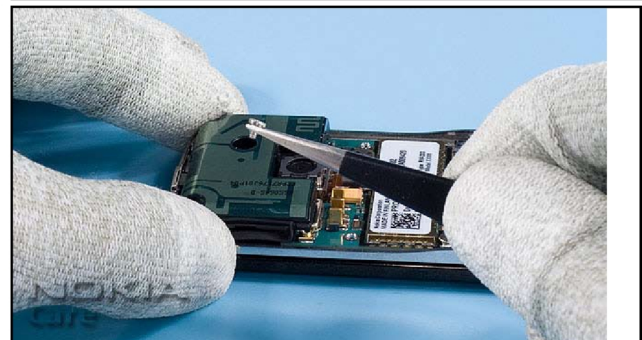
5. Mind the correct positioning of the metal latch of the C-COVER ASSEMBLY when reassembling the UI-COVER.



6. Use a torque driver for tightening the screws. Set the correct torque.



7. Use new screws. Apply a torque of 17 Ncm to the screws in the order shown.



8. Insert a new screw. Apply a torque of 9 Ncm to this screw.



9. Remove the adhesive residues from the C-COVER ASSEMBLY. Ensure that no gaps remain when fitting a new BACK PLATE.



10. Use new screws. Apply a torque of 9 Ncm to the screws in the order shown.



11. Use new screws. Apply a torque of 14 Ncm to the screws in the order shown.